017

RBI~ Technical Services

Project Management Consultancy Services

Quality Control Report
For the

Work of: Improvements to Roads, Drains and Drilling Borwells in ward no. 07 & 08 of Kodigehalli Sub-Division of Byatarayanapura Division, under P3106 Nagarathana works.

BBMP

#2243, 4th 'A' Cross, Hampinagar
Vijayanagar 2nd Stage, Bangalore-560104
Tel.: 080-23300857 Email: rbitc2@gmail.com

RBI - Technical Services

Road - Building - Irrigation Material Testing Laboratory
NABL Accredited Laboratory as per ISO/IEC 17025-2005
ISO 9001 - 2008 Certified

Date:08.1

Quality Control Report
For the
Work of: 1)Reasphalting to Road in Shabri Bakeri road in Byatarayanapura in ward no. 07, Byatarayanapura.

ı Byatarayanapura in ward ı

RBI TECHNICAL SE... Quality Certifie... Bangal...

taken in gms= 15000

ılative Weight ıssing in %	Spec.Limits as IS 383-1970 (R 2011)
100	100
96.63	95-100
68.20	30-70
21.51	10-35
4.01	0-5

val of the laboratory.

received in the laboratory.
ıte of testing.

tant Executive Engineer
Executive Engineer.
halli Sub Division,
ıka Zone, B.B.M.P.
Bangalore.

2243, 4th 'A' Cross, Hampinagar, Vijayanagar 2nd Stage, Bengaluru - 560 104.
080 - 23300857 Cell : 9448352709 Email : rbitc2@gmail.com Website : www.rbits.com

560 104.
www.rbits.com

RBI - Technical Services

Road - Building - Irrigation Material Testing Laboratory
NABL Accredited Laboratory as per ISO/IEC 17025-2005
ISO 9001 - 2008 Certified

Job No:RBITS/MT/BBMP-BD/Package-02/2017-18/001 **Date:08.11.2017**

TEST REPORT

Client Name & address* : Executive Engineer,
Byatarayanapura Division, BBMP.

Name of Work* : Reasphalting to Road in Shabri Bakeri road in Byatarayanapura in ward no. 07, Byatarayanapura.

Name of the test : Sieve Analysis

Method of test : IS : 2386 Part 1 -1963 RA-2011

Type of Aggregate : Coarse Aggregates (40mm down size)

Date of Testing : 07.11.2017

RBI TECHNICAL SERVICES Quality Certified Bangalore.

Total Wt. of Aggregates taken in gms= 15000

Is Sieve Size in mm	Weight Retained (gm)	Retained Weight in %	Cumulative Retained Weight in %	Cumulative Weight Passing in %	Spec.Limits as per IS 383-1970 (RA-2011)
63	0	0	0	100	100
40	505	3.37	3.37	96.63	95-100
20	4265	28.43	31.80	68.20	30-70
10	7003	46.69	78.49	21.51	10-35
4.75	2625	17.50	95.99	4.01	0-5

* Information is furnished by the Customer/Representative

Note:

1. The report shall not be reproduced, except in full, without the written approval of the laboratory.
2. The results indicated above are based on the tests carried out on the samples received in the laboratory.
3. Any Query regarding the report must be reported within 15 days from the date of testing.

RBI -Technical Services
(CONSULTANT)
RBI-TECHNICAL SERVICES

Proprietor

Assistant Engineer

Assistant Executive Engineer
Assistant Executive Engineer.
Kodigehalli Sub Division,
Yelahanka Zone, B.B.M.P.
Bangalore.

2243, 4th 'A' Cross, Hampinagar, Vijayanagar 2nd Stage, Bengaluru - 560 104.
Tel. : 080 - 23300857 Cell : 9448352709 Email : rbitc2@gmail.com Website : www.rbits.com

RBI - Technical Services

Road - Building - Irrigation Material Testing Laboratory
NABL Accredited Laboratory as per ISO/IEC 17025-2005
ISO 9001 - 2008 Certified

Job No:RBITS/MT/BBMP-BD/Package-02/2017-18/001 **Date:08.11.2017**

TEST REPORT

Client Name & address* : Executive Engineer,
Byatarayanapura Division, BBMP.

Name of Work* : Reasphalting to Road in Shabri Bakeri road in Byatarayanapura in ward no. 07, Byatarayanapura.

Name of the test : Sieve Analysis

Method of test : IS : 2386 Part 1 -1963 RA-2011

Type of Aggregate : Coarse Aggregates (20mm down size)

Date of Testing : 07.11.2017

RBI-TECHNICAL SERVICES Quality Certified Bangalore.

Total Wt. of Aggregates taken in gms= **10000**

Is Sieve Size in mm	Weight Retained (gm)	Retained Weight in %	Cumulative Retained Weight in %	Cumulative Weight Passing in %	Spec.Limits as per IS 383-1970 (RA-2011)
40	0	0	0	100	100
20	455	4.55	4.55	95.45	95-100
10	5395	53.95	58.50	41.50	25-55
4.75	3450	34.50	93.00	7.00	0-10

* Information is furnished by the Customer/Representative

Note:

1. The report shall not be reproduced, except in full, without the written approval of the laboratory.
2. The results indicated above are based on the tests carried out on the samples received in the laboratory.
3. Any Query regarding the report must be reported within 15 days from the date of testing.

RBI -Technical Services
(CONSULTANT)
RBI-TECHNICAL SERVICES

Proprietor

Assistant Engineer

Assistant Executive Engineer
Assistant Executive Engineer
Kodigehalli Sub Division.
Yelahanka Zone, B.B.M.P
Bangalore.

2243, 4th 'A' Cross, Hampinagar, Vijayanagar 2nd Stage, Bengaluru - 560 104.
Tel. : 080 - 23300857 Cell : 9448352709 Email : rbitc2@gmail.com Website : www.rbits.com

RBI - Technical Services

Road - Building - Irrigation Material Testing Laboratory
NABL Accredited Laboratory as per ISO/IEC 17025-2005
ISO 9001 - 2008 Certified

Job No:RBITS/MT/BBMP-BD/Package-02/2017-18/001 **Date:08.11.2017**

TEST REPORT

Client Name & address* : Executive Engineer,
Byatarayanapura Division, BBMP.

Name of Work* : Reasphalting to Road in Shabri Bakeri road in Byatarayanapura in ward no. 07, Byatarayanapura.

Name of the test : Sieve Analysis

Method of test : IS : 2386 Part 1 -1963 RA-2011

Type of Aggregate : Fine Aggregates (Sand)

Date of Testing : 07.11.2017

RBI-TECHNICAL SERVICES Quality Certified Bangalore

Total Wt. of Aggregates taken in gms= 500

Is Sieve Size in mm	Weight Retained (gm)	Retained Weight in %	Cumulative Retained Weight in %	Cumulative Weight Passing in %	Spec.Limits as per IS 383-1970 (RA-2011) For Zone-II
10	0	0	0	100	100
4.75	23.9	4.78	4.78	95.2	90-100
2.36	52.2	10.44	15.22	84.8	75-100
1.18	119.6	23.92	39.14	60.9	55-90
0.6	85.7	17.14	56.28	43.7	35-59
0.3	99	19.80	76.08	23.9	8-30
0.15	80.4	16.08	92.16	7.8	0-10

* Information is furnished by the Customer/Representative

Note:

1. The report shall not be reproduced, except in full, without the written approval of the laboratory.
2. The results indicated above are based on the tests carried out on the samples received in the laboratory.
3. Any Query regarding the report must be reported within 15 days from the date of testing.

RBI -Technical Services
(CONSULTANT)
RBI-TECHNICAL SERVICES

Proprietor

Assistant Engineer

Assistant Executive Engineer

Assistant Executive Engineer
Kodigehalli Sub Division,
Yelahanka Zone, B.B.M.P.
Bangalore.

2243, 4th 'A' Cross, Hampinagar, Vijayanagar 2nd Stage, Bengaluru - 560 104.
Tel. : 080 - 23300857 Cell : 9448352709 Email : rbitc2@gmail.com Website : www.rbits.com

RBI - Technical Services

Road - Building - Irrigation Material Testing Laboratory
NABL Accredited Laboratory as per ISO/IEC 17025-2005
ISO 9001 - 2008 Certified

Job No:RBITS/MT/BBMP-BD/Package-02/2017-18/001 **Date:11.11.2017**

TEST REPORT

Client Name & address* : Executive Engineer,
Byatarayanapura Division, BBMP.

Name of Work* : Reasphalting to Road in Shabri Bakeri road in Byatarayanapura in ward no. 07, Byatarayanapura.

Method of test : IS-4031 (Part -5), (Part - 4), (Part - 6) 1988 (RA-2009)

Type of Sample : Cement, OPC 43 grade

Date of Testing : 08.11.2017 to 10.11.2017

RBI-TECHNICAL SERVICES ★ Quality Certified ★ Bangalore.

PHYSICAL PROPERTIES

Sl.No	Name of the test	Test Results	Requirements as per IS: 8112-1989
1	Consistancy	29.00%	Not Mentioned
2	Initial Setting Time	165 minutes	Not Less than 30 Minutes
3	Final Setting Time	380 minutes	Not More than 600 Minutes
4	Compressive Strength		
	3 Days (72 hrs)	25.0 Mpa	Shall not be less than 23.0 Mpa

Note:

1. The report shall not be reproduced, except in full, without the written approval of the laboratory.
2. The results indicated above are based on the tests carried out on the samples received in the laboratory.
3. Any Query regarding the report must be reported within 15 days from the date of testing.

RBI -Technical Services
(CONSULTANT)
RBI-TECHNICAL SERVICES

Proprietor

Assistant Engineer

Assistant Executive Engineer

Assistant Executive Engineer.
Kodigehalli Sub Division,
Yelahanka Zone, B.B.M.P.
Bangalore.

2243, 4th 'A' Cross, Hampinagar, Vijayanagar 2nd Stage, Bengaluru - 560 104.
Tel. : 080 - 23300857 Cell : 9448352709 Email : rbitc2@gmail.com Website : www.rbits.com

RBI - Technical Services

Road - Building - Irrigation Material Testing Laboratory
NABL Accredited Laboratory as per ISO/IEC 17025-2005
ISO 9001 - 2008 Certified

Job No:RBITS/MT/BBMP-BD/Package-02/2017-18/001 **Date:** 13.12.2017

TEST REPORT

***Client Name & address** : Executive Engineer, Byatarayanapura Division, BBMP.

Name of Work* : Reasphalting to Road in Shabri Bakeri road in Byatarayanapura in ward no. 07, Byatarayanapura.

Name of Test : Compressive strength of concrete cubes (for 28 days)

Size of cubes : 150mmx150mmx150mm

Cross Sectional Area : 22500 mm^2

No. of CubesTested : 3 No.s

Technical Reference : IS: 516-1959 (Reaffirmed 2008)

*** Grade of Concrete** : M20

RBI-TECHNICAL SERVICES Quality Certified Bangalore.

Sl.No.	* Date of casting	Date of testing	Weight of cube (Kg)	Failure load (KN)	Compressive strength (N/mm^2)	Average Compressive strength (N/mm^2)
1	14.11.2017	12.12.2017	8.060	508.0	22.58	22.93
2	14.11.2017	12.12.2017	8.095	516.0	22.93	
3	14.11.2017	12.12.2017	8.195	524.0	23.29	

* Information is furnished by the Client

Note:

1. The report shall not be reproduced, except in full, without the written approval of the laboratory.
2. The results indicated above are based on the tests carried out on the samples received in the laboratory.
3. Any Query regarding the report must be reported within 15 days from the date of testing .

RBI -Technical Services
(CONSULTANT)
RBI-TECHNICAL SERVICES

Proprietor

Assistant Engineer

Assistant Executive Engineer
Assistant Executive Engineer
Kodigehalli Sub Division,
Yelahanka Zone, B.B.M.P.,
Bangalore.

2243, 4th 'A' Cross, Hampinagar, Vijayanagar 2nd Stage, Bengaluru - 560 104.
Tel. : 080 - 23300857 Cell : 9448352709 Email : rbitc2@gmail.com Website : www.rbits.com

RBI - Technical Services
Road - Building - Irrigation Material Testing Laboratory
NABL Accredited Laboratory as per ISO/IEC 17025-2005
ISO 9001 - 2008 Certified

Quality Control Report For

Coarse Aggregate, Concrete Cubes

2243, 4th 'A' Cross, Hampinagar, Vijayanagar 2nd Stage, Bengaluru - 560 104.
Tel. : 080 - 23300857 Cell : 9448352709 Email : rbitc2@gmail.com Website : www.rbits.com

RBI - Technical Services
Road - Building - Irrigation Material Testing Laboratory
NABL Accredited Laboratory as per ISO/IEC 17025-2005
ISO 9001 - 2008 Certified

Quality Control Report
For the
Work of: 3)Improvements to roads in Kempapura Cheluvanarayanaswamy house road in ward no.07, Byatarayanapura.

2243, 4th 'A' Cross, Hampinagar, Vijayanagar 2nd Stage, Bengaluru - 560 104.
30 - 23300857 Cell : 9448352709 Email : rbitc2@gmail.com Website : www.rbits.com

RBI - Technical Services

Road - Building - Irrigation Material Testing Laboratory
NABL Accredited Laboratory as per ISO/IEC 17025-2005
ISO 9001 - 2008 Certified

SERVICES

Quality Control Report For

Wet Mix Macadam

ineer.
ion,
M.P

2243, 4th 'A' Cross, Hampinagar, Vijayanagar 2nd Stage, Bengaluru - 560 104.
Tel. : 080 - 23300857 Cell : 9448352709 Email : rbitc2@gmail.com Website : www.rbits.com

RBI - Technical Services

Road - Building - Irrigation Material Testing Laboratory
NABL Accredited Laboratory as per ISO/IEC 17025-2005
ISO 9001 - 2008 Certified

Job No:RBITS/MT/BBMP-BD/Package-02/2017-18/003

Date:07.10.2017

RBI- Technical Services

AGGREGATE IMPACT VALUE

(IS : 2386 Part - 4)

RBI-TECHNICAL SERVICES Quality Certified Bangalore.

Client	Executive Engineer, Byatarayanapura Division, BBMP.
Name of Work	Improvements to roads in Kempapura Cheluvanarayanaswamy house road in ward no.07, Byatarayanapura.
Source of Sample	Hot Mix Plant
Date of Testing	06.10.2017
Material	Wet Mix Macadam

Description		Trails		
		1	2	3
Of stone pieces(dry) passing IS Sieve 5mm but retained in IS Sieve mm(gm)	(Wa)	321.0	321.0	322.0
Of the fraction retained in IS Sieve 6mm after the impact test(gm)	(Wb)	262.5	262.3	262.8
Of the fraction Passed in IS Sieve 6mm after the impact test(gm)	(Wc)	58.20	58.30	58.40
regate Impact value (%)	(Wc/Wa)100	18.1	18.2	18.1
rage Aggregate Impact value (%)			**18.1**	
ified Aggregate Impact value (%)			**30.0**	

Technical Services (CONSULTANT)
BI-TECHNICAL SERVICES

Proprietor

Assistant Engineer

Assistant Executive Engineer.
Kodigehalli Sub Division,
Yelahanka Zone, B.B.M.P
Bangalore.

2243, 4th 'A' Cross, Hampinagar, Vijayanagar 2nd Stage, Bengaluru - 560 104.
080 - 23300857 Cell : 9448352709 Email : rbitc2@gmail.com Website : www.rbits.com

RBI - Technical Services

Road - Building - Irrigation Material Testing Laboratory
NABL Accredited Laboratory as per ISO/IEC 17025-2005
ISO 9001 - 2008 Certified

Job No:RBITS/MT/BBMP-BD/Package-02/2017-18/003 Date:07.10.2017

RBI-TECHNICAL SERVICES Quality Certified Bangalore.

RBI- Technical Services

AGGREGATE IMPACT VALUE

(IS : 2386 Part - 4)

Client	**Executive Engineer, Byatarayanapura Division, BBMP.**
Name of Work	**Improvements to roads in Kempapura Cheluvanarayanaswamy house road in ward no.07, Byatarayanapura.**
Source of Sample	**Hot Mix Plant**
Date of Testing	**06.10.2017**
Material	**Wet Mix Macadam**

Description		Trails		
		1	2	3
Wt.Of stone pieces(dry) passing IS Sieve 12.5mm but retained in IS Sieve 10mm(gm)	(Wa)	321.0	322.0	322.0
Wt.Of the fraction retained in IS Sieve 2.36mm after the impact test(gm)	(Wb)	262.6	263.5	263.0
Wt.Of the fraction Passed in IS Sieve 2.36mm after the impact test(gm)	(Wc)	58.40	58.40	58.50
Aggregate Impact value (%)	(Wc/Wa)100	18.2	18.1	18.2
Average Aggregate Impact value (%)		**18.2**		
Specified Aggregate Impact value (%)		**30.0**		

RBI -Technical Services (CONSULTANT)

RBI-TECHNICAL SERVICES

Proprietor

Assistant Engineer

Assistant Executive Engineer

Assistant Executive Engineer.
Kodigehalli Sub Division.
Yelahanka Zone, B.B.M.P.
Bangalore.

2243, 4th 'A' Cross, Hampinagar, Vijayanagar 2nd Stage, Bengaluru - 560 104.
Tel. : 080 - 23300857 Cell : 9448352709 Email : rbitc2@gmail.com Website : www.rbits.com

RBI - Technical Services

Road - Building - Irrigation Material Testing Laboratory
NABL Accredited Laboratory as per ISO/IEC 17025-2005
ISO 9001 - 2008 Certified

Job No:RBITS/MT/BBMP-BD/Package-02/2017-18/003 Date:07.10.2017

RBI-TECHNICAL SERVICES Quality Certified Bangalore.

RBI- Technical Services

GRADATION FOR WMM
MORTH TABLE-400-11

Name of the Work	**Improvements to roads in Kempapura Cheluvanarayanaswamy house road in ward no.07, Byatarayanapura.**
Client	**Executive Engineer, Byatarayanapura Division, BBMP.**
Source of Sample	**Hot Mix Plant**
Date of Testing	**06.10.2017**
Material	**Wet Mix Macadam**

Oven dry Wt.(gms) **10000**

Is Sieve Size in mm	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Spec.Limits
53	0	0	0	100	100
45	410	4.1	4.1	95.90	95-100
22.4	3190	31.9	36.0	64.0	60-80
11.2	1755	17.55	53.6	46.5	40-60
4.75	1520	15.2	68.8	31.3	25-40
2.36	1140	11.4	80.2	19.9	15-30
0.600	700	7	87.2	12.9	8-22
0.075	600	6	93.2	6.8	0-8

Note: 1) The results indicated above are based on the tests carried out on the samples received in the laboratory.
2)Any Query regarding the report must be reported immediately.

RBI -Technical Services
(CONSULTANT)
RBI-TECHNICAL SERVICES
Proprietor

Assistant Engineer

Assistant Executive Engineer
Assistant Executive Engineer
Kodigehalli Sub Division,
Yelahanka Zone, B.B.M.P.,
Bangalore.

2243, 4th 'A' Cross, Hampinagar, Vijayanagar 2nd Stage, Bengaluru - 560 104.
Tel. : 080 - 23300857 Cell : 9448352709 Email : rbitc2@gmail.com Website : www.rbits.com

RBI - Technical Services

Road - Building - Irrigation Material Testing Laboratory
NABL Accredited Laboratory as per ISO/IEC 17025-2005
ISO 9001 - 2008 Certified

Job No:RBITS/MT/BBMP-BD/Package-02/2017-18/003 Date:07.10.2017

RBI-TECHNICAL SERVICES Quality Certified Bangalore

RBI- Technical Services

GRADATION FOR WMM
MORTH TABLE-400-11

Name of the Work	**Improvements to roads in Kempapura Cheluvanarayanaswamy house road in ward no.07, Byatarayanapura.**
Client	**Executive Engineer, Byatarayanapura Division, BBMP.**
Source of Sample	**Hot Mix Plant**
Date of Testing	**06.10.2017**
Material	**Wet Mix Macadam**

Oven dry Wt.(gms) **10000**

Is Sieve Size in mm	Weight Retained (gm)	Cumulative Weight Retained (gm)	Cumulative % of Retained	Cumulative % of Passing	Spec.Limits
53	0	0	0	100	100
45	415	4.15	4.15	95.85	95-100
22.4	3205	32.05	36.2	63.8	60-80
11.2	1650	16.5	52.7	47.3	40-60
4.75	1495	14.95	67.7	32.4	25-40
2.36	1005	10.05	77.7	22.3	15-30
0.600	840	8.4	86.1	13.9	8-22
0.075	785	7.85	94.0	6.1	0-8

Note: 1) The results indicated above are based on the tests carried out on the samples received in the laboratory.
2)Any Query regarding the report must be reported immediately.

RBI -Technical Services
(CONSULTANT)
RBI-TECHNICAL SERVICES
Proprietor

Assistant Engineer
AE(WT)

Assistant Executive Engineer
Kodigehalli Sub Division,
Yelahanka Zone, B.B.M.P.,
Bangalore.

2243, 4th 'A' Cross, Hampinagar, Vijayanagar 2nd Stage, Bengaluru - 560 104.
Tel. : 080 - 23300857 Cell : 9448352709 Email : rbitc2@gmail.com Website : www.rbits.com

RBI - Technical Services
Road - Building - Irrigation Material Testing Laboratory
NABL Accredited Laboratory as per ISO/IEC 17025-2005
ISO 9001 - 2008 Certified
2243, 4th 'A' Cross, Hampinagar, Vijayanagar 2nd Stage, Bengaluru - 560 104.
Tel. : 080 - 23300857 Cell : 9448352709 Email : rbitc2@gmail.com Website : www.rbits.com

Job No:RBITS/MT/BBMP-BD/Package-02/2017-18/003 **Date:07.10.2017**

Aggregate Shape Test
IS: 2386 Part I

Client	**Executive Engineer, Byatarayanapura Division, BBMP.**
Name of the Work	Improvements to roads in Kempapura Cheluvanarayanaswamy house road in ward no.07, Byatarayanapura.
Type of Mix	**WMM**
Source of Sample	Hot Mix Plant
Date of Testing	**06.10.2017**

Size of Aggregates		Weight of Fraction consisting of atleast 200 pieces, g		Thickness guage size, mm	Weight of aggregate in each fraction passing thickness guage, g		Length guage size, mm	Weight of aggregate in each fraction retained on length guage, g	
Passing through IS sieve, mm	Retained on IS sieve, mm								
63	50	W_1	0	23.9	w_1	0	--	x_1	0
50	40	W_2	0	27	w_2	0	81	x_2	0
40	25	W_3	0	19.5	w_3	0	58	x_3	0
31.5	25	W_4	0	16.95	w_4	0	--	x_4	0
25	20	W_5	2160	13.5	w_5	155	40.5	x_5	155
20	16	W_6	1950	10.8	w_6	140	32.4	x_6	125
16	12.5	W_7	950	8.55	w_7	120	25.5	x_7	115
12.5	10	W_8	675	6.75	w_8	105	20.2	x_8	90
10	6.3	W_9	145	4.89	w_9	5	14.7	x_9	15

Flakiness Index 8.93%
Elongation Index 8.50%
Combined Flakiness & Elongation Index 17.43%

Comments:
→ Maximum allowable Combined Flakiness and Elongation Index for Bituminous Concrete is 30%

RBI -Technical Services
(CONSULTANT)
RBI-TECHNICAL SERVICES

Proprietor

Assistant Engineer

Assistant Executive Engineer
Assistant Executive Engineer.
Kodigehalli Sub Division,
Yelahanka Zone, B.B.M.P.
Bangalore.

RBI-TECHNICAL SERVICES Quality Certified Bangalore

RBI - Technical Services
Road - Building - Irrigation Material Testing Laboratory
NABL Accredited Laboratory as per ISO/IEC 17025-2005
ISO 9001 - 2008 Certified
2243, 4th 'A' Cross, Hampinagar, Vijayanagar 2nd Stage, Bengaluru - 560 104.
Tel. : 080 - 23300857 Cell : 9448352709 Email : rbitc2@gmail.com Website : www.rbits.com

RBI-TECHNICAL SERVICES Quality Certified Bangalore.

Job No:RBITS/MT/BBMP-BD/Package-02/2017-18/003

Date:07.10.2017

Aggregate Shape Test
IS: 2386 Part I

Client	**Executive Engineer, Byatarayanapura Division, BBMP.**
Name of the Work	Improvements to roads in Kempapura Cheluvanarayanaswamy house road in ward no.07, Byatarayanapura.
Type of Mix	**WMM**
Source of Sample	Hot Mix Plant
Date of Testing	**06.10.2017**

Size of Aggregates		Weight of Fraction consisting of atleast 200 pieces, g		Thickness guage size, mm	Weight of aggregate in each fraction passing thickness guage, g		Length guage size, mm	Weight of aggregate in each fraction retained on length guage, g	
Passing through IS sieve, mm	Retained on IS sieve, mm								
63	50	W_1	0	23.9	w_1	0	--	x_1	0
50	40	W_2	0	27	w_2	0	81	x_2	0
40	25	W_3	0	19.5	w_3	0	58	x_3	0
31.5	25	W_4	0	16.95	w_4	0	--	x_4	0
25	20	W_5	2230	13.5	w_5	145	40.5	x_5	155
20	16	W_6	1850	10.8	w_6	135	32.4	x_6	125
16	12.5	W_7	995	8.55	w_7	125	25.5	x_7	115
12.5	10	W_8	685	6.75	w_8	100	20.2	x_8	90
10	6.3	W_9	155	4.89	w_9	15	14.7	x_9	15

Flakiness Index 8.79%
Elongation Index 8.45%
Combined Flakiness & Elongation Index 17.24%

Comments:
→ Maximum allowable Combined Flakiness and Elongation Index for Bituminous Concrete is 30%

RBI -Technical Services
(CONSULTANT)
RBI-TECHNICAL SERVICES
Proprietor

Assistant Engineer

Assistant Executive Engineer
Assistant Executive Engineer,
Kodigehalli Sub Division,
Yelahanka Zone, B.B.M.P.,
Bangalore.

RBI - Technical Services

Road - Building - Irrigation Material Testing Laboratory
NABL Accredited Laboratory as per ISO/IEC 17025-2005
ISO 9001 - 2008 Certified

Job No:RBITS/MT/BBMP-BD/Package-02/2017-18/003 Date: 09.10.2017

RBI- Technical Services

ATTERBERG LIMITS TEST FOR WMM
MORTH TABLE-400-13

Client	:	**Executive Engineer, Byatarayanapura Division, BBMP.**
Name of Work	:	Improvements to roads in Kempapura Cheluvanarayanaswamy house road in ward no.07, Byatarayanapura.
Source of Sample	:	Hot Mix Plant
Date of Sample Testing	:	**06.10.2017 to 08.10.2017**
Material	:	**WMM**

RBI-TECHNICAL SERVICES Quality Certified Bangalore.

Sl. No.	Name of Test	Test Method	Test Results
1	Liquid Limit	IS : 2720-1985 Part 5 RA : 2010	23.50%
3	Plasticity index	IS : 2720-1985 Part 5 RA : 2010	NP

Remarks:

1 Results relate only to the sample (s) under test in as received condition and applicable parameter (s).
2 The sample will be stored upto one month from the date of issue of test report unless otherwise specified.

RBI -Technical Services
(CONSULTANT)
RBI-TECHNICAL SERVICES
Proprietor

Assistant Engineer

Assistant Executive Engineer
Assistant Executive Engineer
Kodigehalli Sub Division,
Yelahanka Zone, B.B.M.P.
Bangalore.

2243, 4th 'A' Cross, Hampinagar, Vijayanagar 2nd Stage, Bengaluru - 560 104.
Tel. : 080 - 23300857 Cell : 9448352709 Email : rbitc2@gmail.com Website : www.rbits.com

RBI - Technical Services

Road - Building - Irrigation Material Testing Laboratory
NABL Accredited Laboratory as per ISO/IEC 17025-2005
ISO 9001 - 2008 Certified

Job No:RBITS/MT/BBMP-BD/Package-02/2017-18/003 Date: 09.10.2017

RBI- Technical Services

ATTERBERG LIMITS TEST FOR WMM
MORTH TABLE-400-13

Client	:	**Executive Engineer, Byatarayanapura Division, BBMP.**
Name of Work	:	Improvements to roads in Kempapura Cheluvanarayanaswamy house road in ward no.07, Byatarayanapura.
Source of Sample	:	Hot Mix Plant
Date of Sample Testing	:	**06.10.2017 to 08.10.2017**
Material	:	**WMM**

RBI-TECHNICAL SERVICES Quality Certified Bangalore.

Sl. No.	Name of Test	Test Method	Test Results
1	Liquid Limit	IS : 2720-1985 Part 5 RA : 2010	24.00%
3	Plasticity index	IS : 2720-1985 Part 5 RA : 2010	NP

Remarks:

1 Results relate only to the sample (s) under test in as received condition and applicable parameter (s).
2 The sample will be stored upto one month from the date of issue of test report unless otherwise specified.

RBI -Technical Services
(CONSULTANT)
RBI-TECHNICAL SERVICES

Proprietor

Assistant Engineer

Assistant Executive Engineer
Kodigehalli Sub Division
Yelahanka Zone, B.B.M.P.
Bangalore.

2243, 4th 'A' Cross, Hampinagar, Vijayanagar 2nd Stage, Bengaluru - 560 104.
Tel. : 080 - 23300857 Cell : 9448352709 Email : rbitc2@gmail.com Website : www.rbits.com

RBI - Technical Services

Road - Building - Irrigation Material Testing Laboratory
NABL Accredited Laboratory as per ISO/IEC 17025-2005
ISO 9001 - 2008 Certified

Job No:RBITS/MT/BBMP-BD/Package-02/2017-18/012 Date:18.10.2017

RBI- Technical Services

Aggregate Impact Value

IS: 2386 Part IV

Client	**Executive Engineer, Byatarayanapura Division, BBMP.**
Name of the Work	Improvements to roads in Kempapura Cheluvanarayanaswamy house road in ward no.07, Byatarayanapura.
Type of Mix	**Bituminous Macadam**
Source of Sample	Hot Mix Plant
Date of Testing	**16.10.2017**

RBI-TECHNICAL SERVICES Quality Certified Bangalore.

Sl No.	Details	Trial No.		Average
		1	2	
1	Total weight of aggregate sample filling the cylindrical measure = W_1 g	382	383	
2	Weight of aggregate passing 2.36 mm sieve after the test = W_2 g	86.5	85.6	
3	Weight of aggregate retained 2.36 mm sieve after the test = W_3 g	297.5	296.9	
4	Aggregate Impact value = percent fines			
	100* (W_2/W_1) percent	22.64	22.35	
				22.50

Comments:

→ Maximum allowable Aggregate Impact value for Bituminous Macadam is 30%

Note: 1) The results indicated above are based on the tests carried out on the samples received in the laboratory.

2)Any Query regarding the report must be reported immediately.

RBI -Technical Services
(CONSULTANT)
RBI-TECHNICAL SERVICES

Proprietor

Assistant Engineer

Assistant Executive Engineer

Assistant Executive Engineer,
Kodigehalli Sub Division,
Yelahanka Zone, B.B.M.P.,
Bangalore.

2243, 4th 'A' Cross, Hampinagar, Vijayanagar 2nd Stage, Bengaluru - 560 104.
Tel. : 080 - 23300857 Cell : 9448352709 Email : rbitc2@gmail.com Website : www.rbits.com

RBI - Technical Services

Road - Building - Irrigation Material Testing Laboratory
NABL Accredited Laboratory as per ISO/IEC 17025-2005
ISO 9001 - 2008 Certified

Job No:RBITS/MT/BBMP-BD/Package-02/2017-18/012 Date:18.10.2017

RBI- Technical Services

Aggregate Gradation Test

IS : 2386 Part I

Client	**Executive Engineer, Byatarayanapura Division, BBMP.**
Name of the Work	**Improvements to roads in Kempapura Cheluvanarayanaswamy house road in ward no.07, Byatarayanapura.**
Type of Mix	**Bituminous Macadam**
Source of Sample	Hot Mix Plant
Date of Testing	**16.10.2017**

RBI-TECHNICAL SERVICES Quality Certified Bangalore.

Total Weight of Sample: **5000** .

SIEVE SIZE, mm	Weight Retained, gm	Cummulative Weight retained	Cummulative % Retained	% Passing	JOBMIX Gradation as per MORTH	Remarks
26.5	0	0	0	100	100	Bituminous Macadam Grade-II specification as per MORTH
19	482	9.64	9.64	90.36	90 - 100	
13.2	1641	32.82	42.46	57.54	56 - 88	
4.75	1288	25.76	68.22	31.78	16 - 36	
2.36	745	14.90	83.12	16.88	4-19	
0.3	530	10.60	93.72	6.28	2-10	
0.075	232	4.64	98.36	1.64	0-8	

Total Weight of Sample: **5000** gms

SIEVE SIZE, mm	Weight Retained, gm	Cummulative Weight retained	Cummulative % Retained	% Passing	JOBMIX Gradation as per MORTH	Remarks
26.5	0	0	0	100	100	Bituminous Macadam Grade-II specification as per MORTH
19	490	9.80	9.80	90.20	90 - 100	
13.2	1495	29.90	39.70	60.30	56 - 88	
4.75	1505	30.10	69.80	30.20	16 - 36	
2.36	680	13.60	83.40	16.60	4-19	
0.3	540	10.80	94.20	5.80	2-10	
0.075	210	4.20	98.40	1.60	0-8	

Note: 1) The results indicated above are based on the tests carried out on the samples received in the laboratory.
2)Any Query regarding the report must be reported immediately.

RBI -Technical Services
(CONSULTANT)

RBI-TECHNICAL SERVICES

Proprietor

Assistant Engineer

Assistant Executive Engineer

Assistant Executive Engineer
Kodigehalli Sub Division,
Yelahanka Zone, B.B.M.P.,
Bangalore.

2243, 4th 'A' Cross, Hampinagar, Vijayanagar 2nd Stage, Bengaluru - 560 104.
Tel. : 080 - 23300857 Cell : 9448352709 Email : rbitc2@gmail.com Website : www.rbits.com

Job No:RBITS/MT/BBMP-BD/Package-02/2017-18/012

Date:18.10.2017

RBI-TECHNICAL SERVICES Quality Certified Bangalore.

Aggregate Shape Test

IS: 2386 Part I

Client	**Executive Engineer, Byatarayanapura Division, BBMP.**
Name of the Work	Improvements to roads in Kempapura Cheluvanarayanaswamy house road in ward no.07, Byatarayanapura.
Type of Mix	**Bituminous Macadam**
Source of Sample	Hot Mix Plant
Date of Testing	**16.10.2017**

Size of Aggregates		Weight of Fraction consisting of atleast 200 pieces, g		Thickness guage size, mm	Weight of aggregate in each fraction passing thickness guage, g		Length guage size, mm	Weight of aggregate in each fraction retained on length guage, g	
Passing through IS sieve, mm	Retained on IS sieve, mm								
63	50	W_1	0	23.9	w_1	0	--	x_1	0
50	40	W_2	0	27	w_2	0	81	x_2	0
40	25	W_3	0	19.5	w_3	0	58	x_3	0
31.5	25	W_4	0	16.95	w_4	0	--	x_4	0
25	20	W_5	0	13.5	w_5	0	40.5	x_5	0
20	16	W_6	1845	10.8	w_6	170	32.4	x_6	165
16	12.5	W_7	1460	8.55	w_7	150	25.5	x_7	105
12.5	10	W_8	810	6.75	w_8	100	20.2	x_8	105
10	6.3	W_9	150	4.89	w_9	10	14.7	x_9	10

Flakiness Index 10.08%

Elongation Index 9.03%

Combined Flakiness & Elongation Index 19.11%

Comments:

→ Maximum allowable Combined Flakiness and Elongation Index for Bituminous Macadam is 30%

RBI -Technical Services
(CONSULTANT)
RBI-TECHNICAL SERVICES

Proprietor

Assistant Engineer

Assistant Executive Engineer

Assistant Executive Engineer,
Kodigehalli Sub Division,
Yelahanka Zone, B.B.M.P.,
Bangalore.

RBI - Technical Services

Road - Building - Irrigation Material Testing Laboratory
NABL Accredited Laboratory as per ISO/IEC 17025-2005
ISO 9001 - 2008 Certified

RBI-TECHNICAL SERVICES ★ Bangalore. ★ Quality Certified

Job No:RBITS/MT/BBMP-BD/Package-02/2017-18/012 **Date:18.10.2017**

TEST REPORT

Client	:	**Executive Engineer,** **Byatarayanapura Division, BBMP.**
Name of the work	:	Improvements to roads in Kempapura Cheluvanarayanaswamy house road in ward no.07, Byatarayanapura.
Source of Sample	:	Hot Mix Plant
Date of Testing	:	16.10.2017

The results of the tests conducted on the **Bitumen VG-30** sample using for Bituminous Macadam collected from the contractor's plant are as follows:

Sl.No	Description	Test Result	Requirement as per IS:73:2013 for Paving Bitumen
1	Penetration at 25^{0}c, 1/10 mm,100g.5s	50	Min, 45
2	Softening point, ^{0}c	52	Min. 47
3	Flash Point, ^{0}c	245	Min. 220
4	Ductility at 25^{0}c, cm Min	100	40

⇒ *The results indicated above are based on the tests carried out on the samples received in the laboratory.*
⇒ *Any Query regarding the report must be reported immediately.*

RBI -Technical Services

RBI-TECHNICAL SERVICES

Proprietor

Assistant Engineer

Assistant Executive Engineer

Assistant Executive Engineer,
Kodigehalli Sub Division,
Yelahanka Zone, B.B.M.P.,
Bangalore.

2243, 4th 'A' Cross, Hampinagar, Vijayanagar 2nd Stage, Bengaluru - 560 104.
el. : 080 - 23300857 Cell : 9448352709 Email : rbitc2@gmail.com Website : www.rbits.com

RBI - Technical Services

Road - Building - Irrigation Material Testing Laboratory
NABL Accredited Laboratory as per ISO/IEC 17025-2005
ISO 9001 - 2008 Certified

Job No:RBITS/MT/BBMP-BD/Package-02/2017-18/017 Date: 19.10.2017

RBI- Technical Services

Specific Gravity And Water Absorption Test

IS: 2386 Part III

RBI-TECHNICAL SE. Quality Certified Bangalore

Client	**Executive Engineer, Byatarayanapura Division, BBMP.**
Name of the Work	Improvements to roads in Kempapura Cheluvanarayanaswamy house road in ward no.07, Byatarayanapura.
Type of Mix	**Bituminous Macadam**
Source of Sample	Hot Mix Plant
Date of Testing	**16.10.2017 to 19.10.2017**

Sl. No.	Details	Notation	Test Number			Mean Value
			Test 1	Test 2	Test 3	
1	Weight of aggregate suspended in water with the basket	W_1 g	2420	2420	2420	
2	Weight of basket suspended in water	W_2 g	1220	1220	1220	
3	Weight of saturated aggregate in water	$(W_1 - W_2) = W_s$ g	1200	1200	1200	
4	Weight of saturated surface dry aggregate in air	W_3 g	2015	2010	2020	
5	Weight of water equal to the volume of the aggregate	$(W_3 - W_S)$ g	815	810	820	
6	Weight of oven dried aggregate	W_4 g	2005	2001	2009	
7	Specific Gravity	$W_4/(W_3-W_S)$	2.46	2.47	2.45	2.455
8	Apparent Specific gravity	$W_4/(W_4-W_S)$	2.491	2.498	2.483	2.487
9	Water Absorption	$((W_3-W_4)*100)/W_4$	0.50%	0.45%	0.55%	0.52%

Comments:

→ Maximum allowable Aggregate Water absorption value for Bituminous Macadam is 2.0%

Note: 1) The results indicated above are based on the tests carried out on the samples received in the laboratory.
2)Any Query regarding the report must be reported immediately.

RBI -Technical Services
(CONSULTANT)
RBI-TECHNICAL SERVICES

Proprietor

Assistant Engineer

Assistant Executive Engineer

Assistant Executive Engineer.
Kodigehalli Sub Division,
Yelahanka Zone, B.B.M.P.,
Bangalore.

2243, 4th 'A' Cross, Hampinagar, Vijayanagar 2nd Stage, Bengaluru - 560 104.
Tel. : 080 - 23300857 Cell : 9448352709 Email : rbitc2@gmail.com Website : www.rbits.com

Name of Work:	Improvements to roads in Kempapura Cheluvanarayanaswamy house road in ward no.07, Byatarayanapura.
Client:	Executive Engineer, Byatarayanapura Division, BBMP.
Agency:	Sri. G.N Ramesh
Mix Type:	BM
Date:	~~08/11/2017~~ 19/10/2017

Sl no	Tipper No.	Time	Cleaning of the Surface	Application of Tack coat	Mix Laying Temperature (C^0)	Mix Rolling Temperature (C^0)	Depth of the Mix Before Rolling(mm)	Depth of the Mix after Rolling(mm)	Remarks
1	KA.52. 5912	11:10 AM	✓	✓	135.8	109.5	~~85~~ 78	50	6 Wheel
2	KA.52.5553	12:15PM	✓	✓	129.0	111.5	875	50	4
3	KA.52.1066	1:00	✓	✓	132.2	112.0	78	50	11
4	KA.52. 5912	2:18	✓	✓	130.0	110.0	75	50	11
5	KA.52.5553	2:55	✓	✓	128.0	114.0	75	50	11
6	KA.52.1066	3:40	✓	✓	137°	109.0	75	50	11
7	K								
8									
9									
10									
11									
12									
13									
14									
15									

RBI-Technical Services

For RBI - Technical Services

Site Engineer

Client Representative

Contractor Representative